Diaspora's Skill, Knowledge, and Technology - Partner in Nepal's Socio-Economic Growth and Development

WHITE PAPER

Non-Resident Nepali Association International Coordination Council (NRNA-ICC)
North-South Americas Regional Skill Knowledge and Technology Conference

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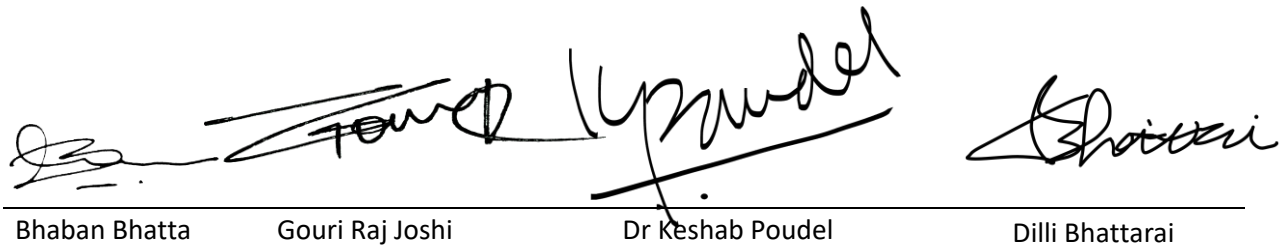
Messages from NRNA Officials

We are immensely pleased with the executive summary and whitepaper of first Nepali diaspora's North and South America region's Skill Knowledge and Technology Conference, which was held in San Francisco, USA on June 16, 2018. Non-Resident Nepali Association, International Coordination Council (NRNA-ICC) organized this historical regional conference.

More than two hundred participants attended the conference, where some fifty professionals from the region presented papers on seven different symposium topics aligned with the National Development Policy of Nepal.

Nepal needs to focus on knowledge-based services to obtain a double-digit economic growth. Nepal government can leverage on the effectiveness of the Diaspora. NRNA can play a lead role to ***create*** a common platform to ***connect*** Nepal with an untapped human capital of Nepali diaspora scattered around the globe and ***collaborate*** in a synergetic way to obtain targeted double-digit economic growth of **Nepal**.
The conference, in our opinion, is highly successful and we fully endorsed the executive summary and the white paper.

Our thanks to Dr. Rudra Aryal, coordinator of abstract review and white paper preparation committee, his team, advisors, presenters, symposium chairs, co-chairs and committee members, participants, and organizing team members of this conference.



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NRNA ICC	NRNA ICC	NRNA NCC, USA	NRNA ICC

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NRNA ICC'S NORTH-SOUTH AMERICA REGION'S SKILL, KNOWLEDGE, AND TECHNOLOGY CONFERENCE

1. BACKGROUND:

On June 16th, 2018, NRNA ICC's regional, North and South America, Conference on "Skill, Knowledge, and Technology Transfer (SKTT) to Nepal" was held at San Francisco, USA.

This White Paper consists implications of presentations by different speakers, panel discussions, and suggestions offered in different symposiums of the conference. The purpose of this Conference is to contribute to the acceleration of Nepal's economic growth, social and cultural preservation and public safety, including an improvement of health and infrastructure through the involvement of America-based Nepali diaspora. A broad spectrum of Nepali diaspora professionals such as doctors, engineers, professors, technicians, information technology entrepreneurs, etc. is in different parts of the world. Given the quantitative along with the qualitative diversity of the Nepali diaspora, NRNA ICC's role has increased to connect diaspora with Nepal government and other non-governmental organizations in Nepal.

Nepal's previous fiscal budgets have also explicitly recognized the strength of Nepali diaspora for overall socio-economic development of the country not only through remittance but also through the deployment of skilled human resources. This indicates that the diaspora can play an active role in the development of the country's economic growth, education, culture, health, and infrastructure. Moreover, the diaspora can be a part of the country's development by promoting technology transfer, sharing relevant knowledge and contributing to policy level changes. This conference witnessed strengths of highly skilled experts who showed great promise in supporting their country and facilitating networking opportunities between the diaspora communities and Nepal by highlighting how diaspora affects Nepal's development or how to make it easier for the diaspora to invest their knowledge and expertise in Nepal.

The common conclusion of seven symposiums was focused on building a strong bridge between diaspora and Nepal by sharing knowledge, skill, and resources. It was concluded that the diaspora's investment in the country would create jobs, and infrastructure and help foreign countries to understand Nepal and attract foreign investment towards Nepal. The summary of initiatives and commitments/strategies received from seven different symposiums is presented below:

2. OBJECTIVE:

The Objectives of the Conference were:

1. Identify and document professional experts in the region.

2. Identify professional knowledge and experiences as a resource to tap.

3. Partner in short and long-term social, scientific, economic and professional growth in Nepal with aims to increase GDP growth through transfer of "Skill Knowledge and Technology."

4. Create a "pathway or process" to implement partnership for a mutual benefit.

5. Create avenue and awareness to "Conserve, Preserve and Promote Heritage and Culture of Nepal".

3. TOPICS OF SYMPOSIUMS:

The topics of discussion were categorized as Symposiums under the general themes enumerated below. The Executive Summary has a short thematic synopsis. Symposium highlights and discussions are elaborated in this section. The different symposiums are on:

1. Science and Technology 2. Agriculture 3. Education and Development 4. Urban planning, Development, and Public Safety 5. Health Sciences 6. Social Empowerment 7. Environment, Renewable Energy, Natural Resources, and Tourism

4. DETAILS ON SYMPOSIUMS

4.1 Symposium on Science and Technology

Science and Technology is an engine of economic growth in many countries. Therefore, the symposium maps out Science and Technology vision for the importance of the diaspora's role in flourishing science and technology to promote relevant issues and development trends in Nepal.

It is evident that in the digital age, data-collecting sensors in infrastructures and other development activities could use the Internet of Things (IoT) technology, Artificial Intelligence (AI), Machine Language (ML), New Materials and new technology relevant to economic development. Implementation of these programs in agriculture, energy, infrastructure, environment, and climate change requires an integrated science and technology "Knowledge Base" to accelerate the current economic development plan.

4.1.1 Big Data for National Planning, Smart City, Infrastructure and Model Development

Developed countries are in the process of shifting to a next-generation development model (NGDM) hugely based on enriched time-series data and technological advancement, most of the developing countries are still following the 1950s development model. Nepal could adopt smart planning and investment approach to reach to the level of front liner countries in a short period. Nepali Diasporas have experience in "interactive-planning tool" to perform dynamic master plan considering the changing available resources in any level of government administrative units. This tool can include both baseline and next-generation planning model. NGDM includes intelligent infrastructures that use integration of IOT, cloud-based technology, GIS, advanced data analytics, integrated interactive platform, real-time data, deep learning, artificial intelligence, predictive/prescriptive analysis. Smart roads, smart street lights, smart water distribution system, a real-time disaster warning system are some components of intelligent infrastructure. It allows planners to evaluate various alternatives based on the priorities and need of the region.

4.1.2 Technology in Material Engineering, 3D Printing, and Medical Science

e-Nable Hand Nepal project volunteers have decided the most efficient use of resources is to help facilitate the creation of a permanent 3D printing laboratory dedicated to the building of e-Nable devices to be provided to the population of Nepal at no cost. This project is about creating a sustainable service center to serve the community in Nepal.

e-Nable will bring the required equipment, expertise and training to Kathmandu to empower the team in Nepal to size, customize and produce low cost, highly customizable artificial hands and arms for the children who need them. These devices are open source devices that have been designed and tested by the e-Nable community. They are 3D printed and assembled with various materials and tools. Once assembled they are donated to recipients at no cost to them. e-Nable has team members in the US and Canada that will support the e-Nable Hand Nepal project.

4.1.3 Application of Remote Sensing Technology in Natural Resources Management, Environment, and Climate Change

Effectively managing natural resources to meet near future needs and long-term sustainable use is a major challenge. The scientific and engineering community is compelled to research and develop methods that can reliably and accurately analyze land use cover and water resources in the field of agriculture, power generation, industrial sector, land reclamation and ecological conservation that will assist in informed solutions, planning, and policy making. Remote Sensing is a scientific technology that is being used to measure and monitor important biophysical characteristics and human activities on earth. It is being used to resolve land use and land cover patterns over extensive areas, from regional to continental scale. Until now the application of freely available remotely sensed satellite image data was limited due to less computational power and storage capacity; however, accompanied with cloud computing technology such as Google Earth Engine (GEE), there is an increased potential for application of remotely sensed satellite images in resources management.

Spatial irrigation datasets that accurately delineate irrigated areas would help constrain water budgets, improve hydrologic models, provide timely information to water managers and food security efforts, give insight into factors that influence irrigation behavior, and further clarify the effects of climate change on irrigation water demand and supply. Currently published scientific methodology of classifying irrigated and non-irrigated fields using satellite images and energy balance model will be presented with its potential applicability in Nepal for agriculture management. Methodology and results of identifying crop types in country scale will be explored. The potential of applying remotely sensed satellite data and surface energy balance model to quantify water budgets for regional water balance study will be explored in presentation talk. Furthermore, an opportunity to use historical Landsat satellite images to estimate and analyze area being affected by river flooding for land reclamation projects will be explored about its implication in the context of Nepal.

4.1.4 Technology, Innovation and Knowledge Transfer (STIKT) committee of NRNA NCC USA – Developing A science and technology hub of Think Tank in the USA to Build a Partnership with Nepal

The NRNA NCC USA has formed a Science, Technology, Innovation, and Knowledge Transfer (STIKT) committee comprising of skilled professionals from Nepalese diaspora with diverse expertise to promote science and technology, and to share essential knowledge, innovation, and development to Nepal. STIKT is creating a "who-is-who" expert's databank in NRNA NCC USA web portal by gathering information using various methods. The databank will be a common platform for building networks, exchanging ideas and collaborating among Nepalese professionals around the world that will further help GoN and other non- government agencies to liaise with experts in various fields. Similarly, STIKT will coordinate with Nepalese professionals in the US and Nepal to provide young students with internship opportunities in academic/research institutions and industries in various fields. In addition, the STIKT committee has come up with sustainable short- and long-term projects that can mutually benefit the Nepalese diaspora around the world and in Nepal. These include networking with Nepalese community organizations in the US to identify talents and human resources, coordinating with local government for empowerment, training workshop, coordination with National Planning Commission on various projects with NRNA expert support, collaboration with academic institutions and Universities in Nepal. The STIKT will organize annual science technology and innovation conference in the US to bring researchers, academicians, and technologists in a single venue. STIKT will work with GoN via NRNA ICC to develop a Science and Technology Policy to provide high priority on Science and Technology research funding by identifying research categories at the national policy to promote scientific research, technology, and innovation to promote economic growth.

4.1.5 Emerging Science and Technology in Biology, Bio-Technology, and Biomedicine

Recent access to education, communication, and technologies have contributed in training of thousands of Nepali professionals in biomedical fields in the US and other countries. These fields include molecular biology and biochemistry, immunology, cell biology, biotechnology, genetics, pharmacology and many others. This pool of expertise is working in equal footage with other international counterparts. This tremendous resource has remained mostly untapped in the benefit of Nepal. Most of the expertise remains isolated and a need of an organization was felt that would facilitate communication among the biomedical scientists across the globe and GoN (institutions). With a spontaneous effort of individuals involved in the field, International Nepali Biomedical Society (INBS) was founded in 2006. INBS aims to provide a platform for all Nepali biomedical scientists, to foster an effective communication between Nepali and foreign biomedical scientists, and to promote biomedical/biotechnology education and research in Nepal. The presentation highlighted the current state of biomedical expertise among Nepali diaspora, INBS's long-term goals, and highlight two immediate pilot projects that could be beneficial and could be the first step towards Nepal's engagement in the international community. Two potential projects that could benefit Nepal are described below.

4.1.6 Use of publicly available "big data" in health and medicine

With the rapid evolution of computational power and sophistication in genomic data generation, research in the biomedical field has taken an unprecedented leap that could be utilized by Nepal. Such publicly available data available through NIH GEO database can be used in a meta-analysis by Nepali researchers without having to go abroad. Trained mentors from diaspora and Nepal could provide mentorship to Nepali young generation to generate research papers that will be published in internationally reputed journals. This has two fundamental benefits. (1) This data could be used to provide preliminary data to apply for grant money from organizations such as NIH, Bill and Melinda Gates Foundation and Chan Zuckerberg Initiative (CZI). These grants will be used to train more Nepali youth in biomedicine and research that will produce data that will furthermore research in Nepal. (2) This initiative will revolutionize the concept of research in Nepal and will boost the morale of Nepali scientists and Nepali youth in that they will be able to publish in international high impact journals, present in international meetings and feel they are equally talented and productive as the scientists in the first or second world. This is in particular very promising as both Bill and Melinda Gates Foundation and Chan Zuckerberg Initiative (CZI) are looking for opportunities to train scientists who are working on third world issues.

4.1.7 Establishing a "biobank" in Nepal that will serve as a resource of clinical specimen to the rest of the world

A biobank (also known as a biorepository or tissue bank) is a collection of biospecimen and their associated information. A biobank can be comprised of human, animal or environmental (e.g. seeds, viruses, soil etc.) biospecimen. In this proposal, only human biospecimen are considered. There is a global market of billions of dollars for clinical specimens from the human. Big pharmaceutical companies are always searching for unique specimens that represent a unique human race and ethnicity. Nepal is diverse in terms of ethnicity and we clearly present a unique population in the global human demography. Clinical samples that are collected for specific hospital/clinic test but are left over after the test could be an invaluable resource to save and sell at the global market. That can be done through proper approval from government agencies to protect human privacy and through consenting. NRN and GoN could invest upfront in establishing a physical structure that can house such specimens. The specimens can be brought to the global market through a web portal. The revenue generated from this "biobank" could be used to support science research in Nepal.

4.2 Symposium on Agriculture

4.2.1 Strengthening academic and research activities of counterpart institutions

The diaspora professionals can significantly contribute to strengthening the existing institutions involved in knowledge, skills, technology generation and transfer process in Nepal. Agriculture and Forestry University (AFU), Nepal Agriculture Research Council (NARC) and agriculture colleges of Tribhuvan University are the government mandated institutions for knowledge, skills, and technology generation

and transfer in agriculture. Teaching online graduate and undergraduate courses can be a significant area of involvement in knowledge sharing and the production of qualified graduates with the latest advancement in agriculture science and technology. Other potential areas are; developing and improving course curriculum through the incorporation of the latest advancement and innovation in various disciplines and subject matter of agriculture, serving in graduate and research committee of the counterpart institutions is an important area of productive engagement for the professors and researchers from the diasporic landscape. This will not only strengthen the academic and research capability of the institutions in Nepal but also significantly contribute to the production of qualified human resources. Establishing multi-country collaborative researches to test and develop new innovative technology in agriculture biotechnology, seed technology, post-harvest technology, disease and pest resistance, varietal development, immunization and vaccine development (animal health) offers an excellent opportunity for diaspora agriculture scientists and researchers to take the lead initiative to establish collaborative researches with counterpart institutions such as NARC, AFU, and IAAS. Conducting periodic joint seminar, workshops and conferences for knowledge sharing in the counterpart institutions for the greater benefits of students, researchers and the faculties is an effective mechanism of knowledge and skills sharing.

4.2.2 Agriculture technology generation

The diaspora can collaborate in researches to develop new innovative technology in specific areas like agriculture biotechnology, seed technology, post-harvest technology-based agriculture, disease and pest resistance, varietal development, immunization and vaccine development (animal health). Technology-based agriculture, such as hydroponics, aquaponics, will increase yield many times more than conventional agriculture.

Agriculture scientists and professionals can take a lead role in technology generation collaborating with counterpart scientists in the following areas:

- Development of micro-propagation protocols in selected crops
- Genetic engineering for integration of desirable traits
- Molecular characterization of germplasm and development of molecular linkage maps
- Preservation of post-harvest losses through control of the metabolic process

Production-related technologies bring quick improvement in production and productivity of different crops. Following areas of integrated production system research were identified:

- Short or medium range programs on horticulture based cropping systems;
- Water and nutrient management including micro-irrigation and fertilization
- Greenhouse cultivation of vegetables and flowers
- Integrated nutrient and production system (hydroponics and aquaponics), pest management, environment pollution and pesticide residue

4.2.3 Export promotional research

- Development of bulk handling system of temperate and tropical fruits, including pre-cooling and Controlled Atmosphere (CA)/Modified Atmosphere (MA) storage and post-harvest protocols for the transport of major fruits like apple, oranges, mango, banana, etc.
- Disinfestation technology including vapor heat treatment (VHT) for export of fresh fruits and extension of shelf life by preventing desiccation of vegetables.
- Organic farming for vegetable and spice crops and residue free IPM technology are important areas of export promotional research.
- Micro-propagation protocols for apple, orange, citrus, mango, litchi rootstocks.
- Improvement in Shoot Tip Grafting (STG) techniques and cross-protection in citrus for virus elimination and control.
- Seed production system for hybrid vegetables and commercialization of micro-propagation in floriculture.
- Development of standardization of packing line operations and proper packaging of different high-value commodities of export potential.
- Development of pesticide residue management and product development research program that add values to the produce.

4.2.4 Agricultural policy changes

- Adopt ecological land use planning and agricultural policy that will create an open and accessible environment to all farmers, agro-industrialists or farmer organizations, and consolidate agricultural land to increase agricultural productivity through the use of modern technology, cooperative and private lease farming.
- Reduce the widespread prevalence of toxicity in food through the development of storage management and quality monitoring system minimizing toxin transfer to high moisture cold chain foods like meats, dairy products, and dry foods.
- Ensure greater market access to address market imperfections and failure through awareness and greater ties among farmers, policymakers, private sectors and civil society to incorporate sustainable, innovative technique with the reform of supportive institutions.
- Review the shortcomings of recently released Agriculture Development Strategy (ADS) in the implementation challenges of federalization of governance and administrative structure and incorporate key drivers of agricultural development such as sustainable commercialization of smallholder farming system, incentives, markets, infrastructural development and devolution of power to the local level.
- Establish innovation incubator agriculture center for medicinal and aromatic plants in local level with the technical assistance and transfer of knowledge and skills of North American Nepali diaspora.
- Enhance dry food chain, cold food chain, lately emerged packaging with use of antimicrobial food grade volatiles replacing the poison being used for storage for food safety. Review other potential sustainable storage practices including robotic inclusion in farm to fork supply chain when and where it is feasible and affordable by stakeholders working in the developing countries

- Revisit agricultural policies of other developing countries to identify the suitable benchmark for agriculture economic model to identify the maximum potential GDP achievable
- Conduct technology adaptive trials that can help both smaller and larger farming operations including those in high-slope and terraced farming environments.
- Provide incentive for the controlled environment greenhouse system for the production of pesticide-free high-quality produce for the year-round supply.

- Develop an effective mechanism for in situ conservation of endangered species, ex-situ conservation of base collections and in vitro storage and cryopreservation of important germplasm
- Strengthen food trade and increasing food resiliency to flood, drought, earthquakes

4.2.5 New technology to reduce food toxins to complement to United Nations Sustainable Development Goals 2 (UNSDG 2)

The symposium identifies both immediate food safety and health centric intervention to improve food quality and other long-term programs to improve quality and productivity. Assessment technologies presented revealed existence of interdisciplinary immediately implementable Dry Chain food quality technology (drying sooner to processing moisture content and airtight or moisture-proof storage) to address food security for the disasters (flooding, drought, earthquakes). Such technology could also address food security during normal times by reducing natural food toxins and minimizing nutrient loss and improve nutrition and health of households. Minimizing ongoing food losses by even 1/3rd could avoid cereal import and full implementation could enable buffer stocks to minimize drought effects and promote the export of quality grains. Since storage food toxins are also transferred to meat and milk products, minimizing toxins in both dry food/feed should be the national priority to improving food security and alleviate malnutrition and hunger and poverty, an immediate concern in the food sector. As Nepal is frequently hit by disasters and receives partial poor quality food after the disasters, she could share the new food technology with neighbors in Asia that experience about 75 million tons of annual grain losses. Similarly, toxins should be minimized in high moisture foods like fruits and vegetables through further promotion and investment in commercial organic enterprises including indoor production. A combination of toxin reduction strategies, including monitoring quality, with improved inputs in both low and high moisture foods, could promote trade, tourism and culture as well and thus complement to minimize hunger and poverty as envisioned in UNSDG2 goals. The diaspora professional proposes to use existing institutions like the Ministry of Agricultural and Livestock Development (MOALD), Nepal Agricultural Research Council (NARC) and Agriculture and Forestry University (AFU) to disseminate such food quality and health-oriented approaches that are basic to economic prosperity.

4.3 Symposium on Education and Development

4.3.1 Sharing Research Activities of Diaspora in Nepal

The purpose of this symposium is to create an environment to build a partnership among GoN, institutes of Nepal and diaspora to strengthen cooperation in higher education and research in a

variety of fields. NRNA should develop a database on the diverse expertise for different universities which can be utilized in Nepal to improve teacher training through e-learning process, co-operation for developing the curriculum, teaching methods, educational research, distance learning programs, which create an easy access for Nepali students to take a variety of courses based on their areas of interest. This will greatly help to further incentive schemes for preventing the brain drain.

4.3.2 Nepali diaspora can be a part of education reform in Nepal

Diaspora can work towards reformation of education domain in Nepal through direct and indirect involvement. The diverse diaspora experts have their strong social connection with their country of residence. There are many examples across the world to illustrate how diaspora can be a part of the development of education to their respective country of origin, such as Singapore, South Korea, India. Diaspora educational professionals can collect research data on educational reform system from those countries to determine the best techniques to implement and support the education reform of Nepal.

4.3.3 Highlighting achievement, the participation of students and monitoring

Research performance of students and academic achievement should be acknowledged at the institutional level by using the institute's website, a local newspaper, and national media as well. This will directly impact on the public mind and highlights students' achievements, which will be helpful for tracking the diverse research area in the country and motivate students for best academic achievement. It will support for Government's direct as well as indirect involvement in monitoring institutions' progress on a timely basis. This monitoring will create a trustable educational connection with the public and will be helpful for further reformation of the education system for the reflection of a better result.

In the symposium, it was also reported that every year there is a significant gap between a number of students who are admitted in grade one and number of students who appear in the national level Secondary Education Examination (SEE). These missing data must be analyzed in national level by involving social leaders, teachers, and diaspora members to assess the challenges and produce a complete report to the public. Education experts of the diaspora can make a significant plan by choosing a different region of the country to reduce the gaps related to gender, ethnicity, or region. For this, the diaspora can support to improve teaching practice of teachers by cooperating with individual schools for evaluation and planning guidance, providing improved learning resources, and initiating different extracurricular activities among students.

4.3.4 Emphasizing the role of teachers and respecting their performances

The role of teachers and their associations must be counted as a part of the development of education quality. Teaching profession must be highly respected at government and social level. Without the participation of best teachers and their support, the high-quality education reform will not be possible.

Teachers should be offered sound wages and provided with a good working environment. Teachers devote significant time to children education, inspiration, and empowerment; therefore, an acknowledgment of their contribution and respect to their profession will motivate teachers to perform with utmost competence and quality.

Continuous improvement of the quality of teaching will be achieved if all the stakeholders strongly support various school activities.

4.3.5 Education for developing skills that enable students to find gainful employment

Appropriate education and training for students considering current and future job market will help to find gainful employment and improve the prospects of economic growth and sustainable development in the broadest sense. Students of all schools should be given an equal opportunity for receiving advanced degrees, computer skills, e-learning, professional certifications, educational workshops and training, seminar and webinars through professional associations. Diaspora can partner with GoN for these training and prepare students to compete in the global educational and job market.

4.3.6 Focusing on developing affordable and quality institutes to attract youth

Brain drain is one of the major problems in the country. Every year hundreds of students go to neighboring countries, overseas for higher education. This will lose not only young and talented students but also move a significant amount of money from the country to abroad. To mitigate exodus of resources, more affordable schools, colleges and universities should open or/and improve the education level to international standard. GoN in collaboration with private-public sectors concrete innovative programs which will help talented youths to realize their potentials. Last few decades, many young students, scientists, doctors, and many other professionals have migrated to the developed countries. The diaspora can work closely with GoN to develop a national level policy to increase investment in private sectors to create jobs, promote scholars and professional on the merit basis.

4.3.7 The opening path for community colleges and vocational training

Community colleges in the USA are providing an affordable education to millions of students of different ages and diverse communities. Community colleges can provide affordable vocational education in Nepal for students who want to pursue their career in trade and accumulate credits to go to University. Diasporas with experience in the USA and other developed countries can partner with GoN to create community colleges in Nepal. Community colleges can be a crucial avenue in Nepal to offer low-cost vocational training, applied degrees, certificates of specialization aligned with the needs of a rapidly changing marketplace. Nepal has been facing challenges to upgrade the quality and outputs of vocational and technical programs because of the low level of attention and social status with the vocational education and training. Developing a THREE-WAY strong link between high schools, vocational colleges and universities in Nepal will be important factors for attracting the youths. A path should be open for diaspora along with international donors for developing vocational training and educational institutes in Nepal. This will transfer the economy and knowledge by creating job opportunities for skilled workers.

4.4 Symposium on Urban Planning, Development, Planning and Public Safety

4.4.1 The opening path for the diaspora to join in planning and developing livable cities

The government of Nepal or policymakers are suggested to open the path for the diaspora to join in developing a livable city in the country. This will build a bond between Nepal's city planners and Nepali diaspora abroad, who are involved in the developed countries as designers, planners, developers, and architects. Urban planners and designers can only develop a livable city by an all-inclusive approach such as collaborating among the diverse group of people from public and private sectors and giving high priority on the environment, people and daily life activities in the town. The cities must be shaped in a way to reflect humanitarian values. Preparing long-term planning on key elements such as water supply, road, buildings, climate adaptation, urban mobility, culture, and history will develop a platform for building the smart cities by keeping those values intact and robust.

4.4.2 Adopting "Public Safety for All including for People with Disabilities and the Elderly [PSFA]"

All citizens deserve safe and conducive environments that save lives and respect and nurture their God-given potentials. "Public Safety for All including for People with Disabilities and the Elderly [PSFA]" encompasses many disciplines that deal with safety and quality of life issues. Nepal's development, under the PSFA umbrella, could address earthquake and fire safety design and practices in urban development, heritage preservation and conservation, infrastructures developments, small or big, such as hydropower and utilities, housing, traffic and transportation, pollution-control, educational facilities like schools and universities, healthcare facilities – clinics and hospitals, essential facilities such as fire stations, and many more. "Skills, Knowledge and Technology sharing to Nepal" using PSFA as an instrument for change will ensure safety and security that upholds the human rights of all citizens and continues to cherish, protect and preserve Nepal's unique heritage and natural assets and resources.

4.4.3 Designing to counter natural disaster such as Earthquake

The extensive damage caused by the 2015 Earthquake in Nepal has demonstrated that critical issues related to the safety of people in the rural and urban areas need to be considered properly while planning and designing settlements. Pre and post-disaster planning and management has become a challenge because of a weak institutional system that continues to ignore public safety related to earthquake, fire and other disasters and accessibility to the disabled individuals. The urban development in Nepal remains extremely vulnerable to earthquake damage. For example, the towns of Kathmandu Valley are characterized by extremely high density, lack of distributed open spaces, and poor accessibility for emergency vehicles. The inclusion of earthquake-friendly elements in the municipal zoning code and requiring that new development meet city's design guidelines will help minimize the adverse impact of earthquake events on the lives of the urban residents. The priority elements proposed in the codes are the provision of open spaces at regular intervals, requiring a hierarchy for the street system, articulating building design guidelines and preparing a land use plan from earthquake safety perspective. The diaspora can effectively collaborate with the Government of Nepal agencies in developing policy, planning, and strategy toward developing an urban and rural settlement system that helps in public welfare, safety and comfort.

4.4.4 Delivering Billion Dollar Projects – Adopting the American Approach for managing large-scale infrastructure and Development Projects*

In America, most of the mega infrastructure projects undertaken by the government entities (Federal/State/Local) are delivered using Construction Management at Risk (CMAR) method. CMAR is a project delivery method in which the Construction Manager acts as a consultant to the Owner in the development and design phases but assumes the risk for construction performance as the equivalent of a general contractor holding all trade subcontracts during the construction phase. This delivery method is also known as Construction Management/General Contractor (CM/GC).
CM/GC combines qualities of several other methods to project delivery, such as:

- It maintains the direct contractual relationship between the Owner and the Designer of traditional Design Bid Build method;
- It provides the Owner with similar independent advisory and oversight functions of Agent CM;
- It achieves the early cost and schedule feedback of Design-Build approach; and
- Constructability reviews between Contractor, Designer, and Owner provide optimum project development for all stakeholders.

A skillful introduction of a CM/GC typically results in huge cost savings during the design and construction phases, and from construction contingency. Such savings are typically shared between the Owner and the CM/GC, although the Owner receives most of any savings.
In the USA, many individual States have passed their own CM/GC Bills. Nepal and its federal States can come up with their own version of CM/GC Bills. We do not need to reinvent the wheels; rather, we can adopt the best available delivery model – of course with the certain degree of customization in Nepal context. If we are serious about "development" and "economic transformation" of the country through these multi-million dollar Projects of National Pride (PNPs), it is important that we deliver them right by picking a right *method of delivery*.

To satiate the long-subdued aspiration of the people and earn the confidence of the donor communities, the current government could embark on and execute a few of the large mega projects--those in the *Billion Dollar range*—successfully and urgently.
In Nepal, such PNPs are already announced, which are four irrigation projects (Sikta Irrigation, Babai Irrigation, Rani Jamara-Kulariya Irrigation and Bheri Babai Diversion); three airport projects (Nijgadh International Airport, Gautam Buddha International Airport and Pokhara International Airport); three hydropower projects (Upper Tamakoshi Hydropower, Budhi Gandaki Hydropower and West Seti Hydropower); two development funds of religious value projects (Pashupati Area Development Trust and Lumbini Development Trust); six roadways (Mid-Hill Highway, Postal Highway, Kathmandu-Terai Fast Track (KTFT), Koshi, Kali Gandaki and Karnali Corridors); East-West Railway; Melamchi Drinking Water Project; and the President Chure Terai Madhesh Conservation.
These are all good infrastructure projects, and each one of them will contribute to the rapid growth and economic prosperity of the country if they do get completed. Successful delivery of such mega projects--within the specified timeframe and under the allotted budget--requires lots of experience of delivering such billion-dollar projects. Nepali diaspora in the USA are working in the field of Mega Projects and will be able to share this Skill, knowledge, and Technology by coordinating with the construction companies and GoN.

** This concept paper was accepted to present in the conference, however, presenter was unable to attend and present the paper at the conference but made personal communication with white paper preparation committee*

4.5 Symposium on Health Science

4.5.1 Ambulance services and ambulance attendants training

Medical training of ambulance attendants is very important for providing the reliable medical services for needy patients before taking to the hospital. Nationally recognized training, education must be given to the attendants, and a better system of communication should be established between an emergency section of hospital and ambulance attendants. Developing a trust on the ambulance service among the people is very important. This can be done as follows:

- GoN could take initiation for the development of National Ambulance Service, implementing the research for the best evidence-based service.
- Develop the regional and national ambulance services by collaborating with academic partners, such as medical institutes to adopt the research by focusing on patients and ambulance services.
- Increase the ambulance capacities quantitatively and qualitatively.

4.5.2 Importance of translating evidence into practice

Research-based data is very important to communicate with the clinicians, policy makers, patients, and their families as well. This will support to communicate with patients based on the quality facts. Providing education, innovative idea handling the modern technology, identifying and adopting the evidence-based practices will provide trustable care of the patients.

4.5.3 Tackling public health challenges

Public health is a critical part of the human society. Developing a high quality and a practical curriculum in the higher education in public health will develop valuable steps to build the resources for evidence-based involvement by conforming to public opinion.

4.6 Symposium on Social Empowerment

4.6.1 Harmonizing the plan to prepare active citizens and volunteers

Nepali diaspora living in developed countries have witnessed and got directly involved at the planning level. By doing so, they have garnered experiences of community services, and valuable activities in the school and society. A public awareness program such as workshop, seminar, direct counseling, news media, and personal communication among the people should be brought by collaborating with the government of Nepal**.**

4.6.2 Developing citizenship curriculum in the school as a credit course

The curriculum associated with community involvement as a part of citizenship could be developed and implemented at each high school in Nepal. In America, this is one of the very effective courses to prepare young students to be responsible for the society, nation, and develop the working habit of any level. In this system, students do the volunteer, and at the same time, they get the academic grade based on their social learning through volunteer work. They have a specific hour to work on to complete this course credit. Based on the feedback from students and parents, the US school system has reported that the citizenship curriculum is very interesting and effective to address the social learning skill for students. Young people should be encouraged to put their view on making the communities different.

4.6.3 Training local representatives to empower local people

Nepal has just entered in a different political system, dispersing power, from the central to the local level; however, there is still confusion among the local government due to the incomplete laws and policies. The local body government is still facing the difficulties to use the budget properly for bringing effective programs that empower the people and develop the community-based program. Due to the lack of professionals, experts in the local level are facing tremendous difficulties in the areas of communication, develop planning, and keep the records of own citizens activities such as driver record, appointment, work evaluation, etc. If newly-elected representatives are not trained and do not clearly understand their roles and responsibilities, then they will be lost and will not be able to meet the growing demands of their constituents. The only way of empowering the nation is to empower the local governance. Based on these discussions, the team recommended the following as the preeminent needs for Nepal's local elected officials:

- Understanding roles and responsibilities
- Understanding the fiscal/budgeting process and revenue system partners, such as medical institutes to adopt the research by focusing on patients and ambulance services
- Understanding the judicial role assigned to deputy mayors under the new constitution
- Leadership training, especially as it relates to public speaking and community engagement
- Basic computer and information technology training
- Negotiation/conflict resolution/consensus building
- How to work collaboratively with bureaucrats/administrators

4.7 Symposium on Environment, Renewable Energy, Natural Resources and Tourism

4.7.1 Environment

Understanding fundamental of pollution and climate change, its impact on human health and society, solution and pollution management is a complex area, which requires an integrated high- level academic research. Since it is a global issue many Nepalese and foreign scientists, engineers, economists, political and social scientists are working across the world including in Nepal.

4.7.2 Air Pollution

The latest global environmental performance index (EPI) report released by Yale University and Columbia University in collaboration with the World Economic Forum has ranked Nepal at the bottom among the 180 countries. Air quality in Nepal score is 3.94, and it is ranked 180 whereas neighboring countries China, India, and Bangladesh have 14.39, 5.57, and 4.12 scores, and they rank at 177, 178, 179 out of 180 countries respectively. The EPI uses three indicators to measure air quality: household use of solid fuel (wood, dung), PM2.5 average exposure, and PM2.5 exceedance.

4.7.3 Sources of Air pollution

Major air pollution in Nepal is from domestic cooking, vehicular emission, local kiln industries, waste burning, infrastructure development and violation of Engineering Code of Ethics, unattended damaged structures after the earthquake and trans-boundary air pollution.

4.7.4 Water Pollution

Water contamination is widespread especially in big cities in Nepal. Approximately 75 % of water pollution is caused by domestic and industrial waste, polluted air and soil. Sewage is the liquid waste discharged from all domestic and industrial sources. Untreated sewage is discharged into freshwater bodies. As the sewage contains organic matter that harbor disease-causing microorganisms and accelerates dissolved oxygen consumption for decomposition of such huge amount of organic matter by microorganisms. This process leads to develop maximum “biological oxygen demand” (BOD). BOD is defined as the amount of oxygen required for the oxidation of organic matters by microbial action. The BOD value of clean water is usually between 1 and 2 mg/liter. It is used as an indicator of the degree of pollution. Sulfides, sulfites and other organic residues are the major pollutants of water released from various industries such as Dairy, Tanners, Paper mills, etc.

4.7.5 Soil Pollution

Soil pollution is largely from agrochemicals sources include fertilizers, manure and pesticides and to a lesser extent by domestic, industrial and pollutant air and water. Different types of heavy metals are basically released from pesticide, fertilizer, and use of industrial effluents for irrigation in Nepal. The use of pesticides has been increasing rapidly in recent years. The total amount of pesticide is used 347 tons per year in Nepal, which consists of 68% fungicide, 11% rodenticide, 17% insecticide and 4% herbicide. All these pesticides contain a different concentration of heavy metals which is available in considerable amount in the soil once they are being used. The available heavy metals in the soil get accumulated in the vegetation by the natural process of bioaccumulation. The main pollution effect caused by fertilizers, pesticides, and chicken manure is the introduction of heavy metals into the soil. These are the introduction of the heavy metals (As, Cd, Pb, Mn, and Zn) by some phosphate fertilizer and soil contamination with Zn, As and Cu possibly from chicken or pig manures.

4.7.6 Climate Change

The exponential growth of CO_2 and other greenhouse gasses in the atmosphere is causing climate change. It affects agriculture, forestry, human health, biodiversity, snow cover and aquatic to mountain

ecosystems. With an average of 0.06ºC/yea, a rise in temperature from 1975 to 2006 by 1.8ºC has been recorded in the country. A study done on CO_2 enrichment technology at Khumaltar revealed that the yield of rice and wheat increased by 26.6% and 18.4% due to double CO_2, 17.1% and 8.6% due to increase in temperature respectively. A crop simulation model (DSSAT) to study the effects of CO_2, temperature and rain in NARC showed a positive effect in yield of rice and wheat in all regions, but negative effect in maize especially in Terai.

4.7.7 An impact on Human life, Industries. Society and National Economy

According to the World Health Organization (WHO), air pollution causes detrimental health consequence to people including diseases like cancer, stroke, heart disease, or asthma. Contaminated water causes rapid spread of water-borne disease and the toxic substances in water that kill the beneficial living organisms and destroy the biological activity. There is an increasing trend of neurological problems in Nepal. One of the causes of the increased neurological problem is due to the consumption of food and vegetables contaminated with heavy metal. Climate change may seriously affect the weather patterns, which may hurt geology, geography, agriculture, and social structure. Changes in climatic factors like temperature, solar radiation and precipitation have potentials to influence crop production. Despite many efforts possible on combating impacts of climate change, there are still difficulties in Nepalese agriculture. The problem of frequent drought, severe floods, landslides and mixed type of effects in crops have been experienced in Nepal because of climate change. Research shows that Nepal has received poor air quality from the neighboring countries and even having a greater pollution impact over the Himalayan Region changing the color of snow, melting of ice in the Himalayan region.

4.7.8 Solution and Management - Collaboration and Technology Development

Many academic researchers across the world are actively involved in a high-level academic study in data collection, data interpretation, and model development to assisting policymakers in short and long-term planning as well as to provide immediate assistance to mitigate the current air pollution. Many Nepali diaspora researchers have been involved along with the Nepali researchers to study the indoor and outdoor air pollution and its impact over human life by collecting research from different monitoring stations, for example, Kavre to the Himalayan region of Nepal. Modeling work being done at Universities in USA and Germany on trans-boundary air pollution will enormously help in predicting and planning air pollution management in Nepal and neighboring countries. Diaspora experts in the field of environment and climate change can collaborate with GoN, academic institutions on following areas.

4.7.9 Promoting Environmental Education, Awareness, Participation and Behavioral Change

Environmental education, awareness, participation can prepare citizens to respect and understand the importance of environmental impacts on human life and society. Preparing students from the elementary school level will encourage them for understanding past, present and future environmental issues and develop an environmentally friendly behavior. Highly skilled and motivated community will

be prepared to respect and manage the conservation of natural and cultural resources of their environment.

4.7.10 Developing and Implementing New Policies and Technologies to Combat Degrading Air Pollution

It is recommended to develop, implement and examine local, provincial and national level environmental policy to include an integrated policy planning in the areas of green energy industries, sustainable utilization of soil and water resources, developing low carbon ecological cities, and focusing on renewable energy, ensuring quality of life and protecting environment such as preventing pollution and ecological degradation.

4.7.11 Launching public awareness over Environmental Injustice, Trans-Boundary air Pollution in Nepal

- Citizens shall be informed about the environmental injustice that people are suffered from the transboundary pollution.
- The government relocates many industrial activities, dumping sites, and many other air pollution activities that pollute the surroundings and residential location.
- Public awareness program and government policy to tackle pollution, e.g. low emission vehicles such as electric, LPG and Hybrid, and carpooling while traveling to workplace or any other place.
- Civil construction that produces the dust should be managed well to reduce the pollution.
- Three-quarters of the household energy needs in Nepal are met by burning solid fuels, making the residential sector a major consumer of biomass and emitter of health and climate-damaging pollutants. This dependence on traditional solid fuel practices has resulted in making household air pollution (HAP) the leading risk factor for ill health nationally. Field assessments done in Nepal suggest that LPG, biogas, and electricity can deliver a significant reduction in the kitchen and outdoor PM2.5 concentrations.

4.7.12 Renewable Energy

Energy is indispensable in modern society and is one of the most important components of socio-economic development. Nepal is one of the least developed countries with more than 80% of its population residing in rural communities. Per capita, energy usage – often viewed as a key index of the development – in the country is far less than the global average per capita energy usage. The energy sector is dominated by the traditional energy sources such as fuel woods, crop residues, and animal dung mainly for domestic usage contributing to about 86% of the national energy consumption. Currently, 40% of the population has access to electricity, and the rural electrification accounts for only 29%. Nearly all fossil-derived fuels consumed in the country are imported in a refined form, and the perpetual increase in petroleum imports has adversely impacted the existing fragile economy of the country. Despite a huge potential in harnessing various renewable energy resources such as hydropower, solar power, wind energy and biofuels/bioenergy, these resources have not been sustainably captured due to geographical, technical, political and economic reasons. The renewable energy still accounts for less than 10% of total energy use worldwide.

Nepal aims to achieve universal access to clean, reliable and affordable renewable energy solutions by 2030. It is expected to reduce dependence on traditional and imported energy by increasing access to renewable energy.

The energy available from the sun is limitless and can be harvested free of cost. However, efficient conversion of photo-energy from the sun into usable electricity has been very costly.
The use of solar energy is more reliable than traditional electricity in Nepal. Private installations of solar panels are more frequent in urban areas used as a backup during the power outages.

On average, Nepal has 6.8 sunshine hours per day with the intensity of solar radiation ranging from 3.9 to 5.1 kWh per meter square, with a commercial potential of solar power for grid connection estimated to be 2,100 MW.

In 2015, Nepal and the World Bank signed an agreement to invest USD 130 million in developing a 25 MW solar project that will eventually be connected to the national grid.

The wind potential is available in the mountainous region. Solar and Wind Energy Resource Assessment project has estimated the wind resource potential is about 3,000 MW of wind energy.

4.7.13 Tourism

Promoting tourism in Nepal

Given the country's unique natural assets, including the highest mountain range in the world, and rich heritage and cultural diversity, tourism is a potential vehicle for economic development. However, uncontrolled and unplanned tourism development may also threaten the delicate environment and socio-cultural integrity of the country. Furthermore, tourism is a complex global business that is impacted by various internal and external factors.

GoN has set a target to bring 2 million tourists per annum by 2020. To meet this goal, it is recommended to:

- Develop Nepal as a sustainable, high-value quality tourism destination
- Increase capacity (transportation, accommodation, attraction) without compromising the cultural and environmental integrity
- Improve access and connectivity, particularly to less developed areas in the far west and far east.
- Devise tourism plans and policies that help both sustainability and competitive parameters of tourism
- Develop human resources needed to serve and manage the industry

4.7.14 Natural Resources

Natural resources, such as vegetation, land, air, and water have a wide variety of stakeholders with conflicting interests in their uses and management for different purposes from subsistence to business. There seems a conflicting interest among the stakeholders, for instance by making a decision and utilizing the products. As a result, most of these common property resources including forests have been depleted, reduced, degraded or disappeared. Climate change further amplified these impacts as we continue using these resources unsustainably. Added to these natural impacts, anthropogenic activities have also further complicated the management of these resources. Nevertheless, efforts have been made globally for many decades, but with little effects on minimizing such unsustainable practices.

Nepal's forest resources changed drastically since the 1950s, with unplanned activities. Policy changes since the late-1970s, and implementation of several forestry development programs in all geographical regions gave some hope Nepal emerged as a global model in engaging local communities in forest management. However, it did not result in the desired level of outcomes. The causes of the problem and failure to yield desirable outcomes of past policy interventions were explored. One of the major factors witnessed was the policy decisions were neither completely science-based nor utilized the past evidence of best management practices. As a result, policy and program contributed little in making impacts on forest growth (quality and quantity) and equitable benefit sharing among the stakeholders. It is argued that science-based policy actions are required to reconcile the conflicts.

Forest ecosystems in Nepal are so diverse that research-based knowledge is limited and never replicated in other ecosystems or even replicated were failed due to the different socio-economic background. Exploring and creating such knowledge needs enormous and focused research and experimental development (R&D), including field action research. Besides mobilizing and strengthening local communities, the policy needs to explore possibilities of facilitating and engaging universities, research organizations, industries, others (e.g., NRNA) in R&D. Given the appropriate environment, highly qualified professionals living outside Nepal may play an important role to bridge the gap of action research, through their skills, knowledge, and experience.

Also, it is recommended to explore multiple opportunities to be better informed about emerging global demands of the forest based-medicinal and aromatic plant to be used in food, natural health products, nutritional supplements, ayurvedic medicine, herbal medicine, Unani and in pesticide, insecticides, nematodes, grain preserving agents, cleaning agents and sanitizers and explore their commercial potential

4.8 Presenters, chair, co-chair, group members of different symposium topics:

4.8.1 Symposium of Science and Technology

Chair: Dr. Nabin Kumar Shrestha	nkshrestha@cantab.net
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Presenters:
Tara Sigdel; Time is Ripe for Harnessing Expertise and Resources in Biomedicine for Greater Good. However, Are We Ready?
Correspondence: *Tara Sigdel(* tksigdel@gmail.com)

Satish Tripathi, P.E.; Sanjeev Rai: Next Generation Development and Planning Approach: Demonstration of Interactive Tool
Correspondence: *Satish Tripathi* (er.satish7@gmail.com)

Pashupati Pandey; Science, Technology, Innovation and Knowledge Transfer (STIKT) committee of NRNA NCC USA initiates experts' databank, online mentoring and internship opportunities with other sustainable short term and long terms goals

Correspondence: *Pashupati Pandey (* pashupati7@gmail.com)

Rishi Shrestha; e-Nable Hand Nepal Project
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Mahesh Pun; Application of Remote Sensing Technology in Natural Resources Management
Correspondence: Mahesh.pun@longspring.com
Arjun Banjade; Do American NRNs have the skills for Nepal's Modernization?
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4.8.2 Symposium on Agriculture

Chair: Dr. Gopi Upreti	goupreti@gmail.com
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Presenters:

Gopi Upreti; Agriculture Development Strategy and Sustainable Production System in Nepal.
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Durga D. Poudel; Agriculture Development in Nepal: Challenges and Opportunities
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Peetambar Dahal, Durga Poudel, Stanley Chitekwe, Krishna Belbase, Luke Mullany, Keith West, John Groopman, Ganesh Shivakoti, Rosina Poudel, Jigyassa Sharma, Shiva Gautam, Manish Neupane, Amir Sapkota, Gokarna GC, Amod Pokhrel, Achyut Sharma, Sanjita Pradhan, Arjun Karki, Kailash Pokhrel, Keshab Paudel, Jagger Harvey, Kent Bradford; Complementary Dry Chain Food / Health Technology to UNSDG2 Goals
Correspondence: Peetambar Dahal (peetambardahal@gmail.com)

Narayan Ghimire; Traditional Agro-Plants Commercialization
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Tilak Mahato: Controlled Environment Hydroponic Agriculture for Higher and Year-Round Crop Production
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Manoj Karkee; Automation and Robotics in Agriculture: Global Perspective and Nepali Context
Correspondence: Manoj Karkee (manoj.karkee@wsu.edu)

Ram Acharya; Potential Policy Options for Revitalizing Agricultural Productivity in Nepal
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4.8.3 Symposium of Education and Development

Chair: Dr. Prem Adhikari	Prempuga@gmail.com
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Presenters:

Yadav Pandit; Assessment of Nepali Researchers' Role in Global Scientific Communities

Correspondence: ypnepali@yahoo.com

Laxmi Pathak; Cultural Competency Education and its Implication in Nepal's Educational Context
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Durga Dahal; An analysis and assessment of higher education in Nepal
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Laba Prasad Tripathi; Proposed Role of NRNA NCC USA for educational development in Nepal
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Naba Gurung; Empowering Public School Teachers and College Lecturers to Become Agents of Change
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Uttam Gaulee, Krishna Bista, Shyam Sharma; Community College for Workforce and Economic Development in Nepal
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Pramod Dhakal; Education, Research and Innovation in Nepal: A Diaspora Perspective
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4.8.4 Symposium on Urban Planning, Development, Planning and Public Safety

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Presenters:

Ambika Prasad Adhikari; Towards an Earthquake-friendly Planning in Nepal
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Ananta Ram Baidya: AB&H Engineering and Code Consulting Services
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Ranjeet Mahato: FDI into Nepal, Prospects & Challenges and Role of NRNs
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Ratan Jha: Delivering Mega Infrastructure Projects - An American Approach (only paper submitted)

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4.8.5 Symposium of Social Empowerment

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Presenters:

Kiran "Ron" Sitoula; Empowering the Nation through Effective Elected Local Legislators in Nepal
Correspondence: sitoula@gmail.com

Gunraj Luitel and Sachchi Mainali; Role of Media and Social Empowerment
Correspondence: Gunraj Luitel (gunarajluitel@gmail.com)

Indira Tripathi; Role of Women Forum, NRNA NCC USA about women development issues in Nepal
Correspondence: Indira Tripathi (tripathi_indira@yahoo.com)

Hem Raj Sharma; Expanding Nepal's Knowledge Pool Through Diaspora
Correspondence: Hem Raj Sharma (hemraj.sharma@nrna.org)

Ang Chhiring Sherpa; Impact of Global Warming and Pollution over Mount Everest
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Kul Acharya; How NRNA ICC is working for connecting Nepali Diaspora with Nepal"
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4.8.6 Symposium of Health Science

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Presenters:

Satya N. Chaudhary; Role of healthcare leadership for the development of strategies to implement the outcome of clinical research into regular medical practice in the context of Nepal.
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Shyam Thapa: Building Bridges for Knowledge, Skills, and Technology Exchange: Experience Based on Public Health Research and Human Resource Development in Nepal

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Paul S. Auerbach; Nepal Ambulance Service
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Santosh Sapkota; Advancing Healthcare in Nepal: Two Decades Plus Journey of ANMF
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Rajendra Prasad Pangeni, Sanjivan Gautam, and Roshan Lal Shrestha; Transferring innovations and technical skills in cancer research, diagnosis, and treatment to Nepal
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4.8.7 Symposium of Environment, Renewable Energy, and Tourism

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Presenters:

Badri K. C, Satish Tripathi; Energy Efficiency Program: A gift from Diaspora to Nepal
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Krishna Hari Gautam, Bharat Pokharel, Mahadev Sharma, and Keshav Bhattarai; a New paradigm in natural resources policy intervention: Challenges and opportunities
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Amod Pokharel, Rudra Aryal, Anobha Gurung, Puru Shrestha; Air pollution and Health in Nepal: New Evidence, Past Findings, and Policies to Reduce Environmental and Health Risks due to Air Pollution
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Tara Dhakal; Solar Energy: Clean, green and sustainable power source of the future, and what opportunities lie ahead for Nepal
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Gyan Nyaupane; Prospects and Challenges of Tourism Development in Nepal.
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Lila Baniya; US Outbound travel in Nepal and Role of NRNA for tourism promotion
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